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SURGICAL CASES, FROM THE RECORDS OF THE CITY HOSPITAL, BOSTON.

[Reported for the Boston Medical and Surgical Journal by David W. Cheever, M.D., one of the Visiting Surgeons.]

*Eighth Paper.**—On Injuries of the Head.

Abstract of a Clinical Lecture delivered in June, 1866.

The records furnish us with twenty-four cases of this form of injury, as follows:—scalp-wounds, 6; concussion, 10; diffused contusion, 1; fractures of the vault, 3; fractures of the base, 4. Total, 24.

Glancing very briefly at the first two, or milder classes, we shall devote our attention chiefly to the fractures of the skull. Before proceeding to do so, it may not be improper to recur for a moment to the anatomy of the head.

Proceeding from without inwards, we have the following structures: A very vascular skin, or scalp, connected by loose cellular tissue to the broad and thin aponeurosis of the *occipito-frontalis* muscle; this aponeurosis being rather closely connected to the periosteum. Beneath these, the tough outer table of the skull, the vascular diploë, and the brittle inner table. Next, the dura mater, a fibro-serous membrane, discharging the function both of an internal periosteum and of a firm wrapping and tensor of the brain. Within the cavity of the encephalon, a smooth inner wall about the vault of the cranium, and a very rough and broken surface at the base.

The recuperative power of the scalp is only equalled by the facility it affords to pus to burrow beneath it, in all directions. The tighter and firmer investment of the aponeurosis brings any pus *beneath* this fascia into close and destructive neighborhood with the periosteum and bone. The close connection between the pericranium and the dura mater (or internal pericranium) often leads to the rapid transmission of disease of the bone beneath the former to the latter, and thence to the brain. The venous channels of the diploë afford every facility for purulent absorption and infection. And, finally, the rough surface of the base of the skull is much more liable to cause laceration of the cerebral substance in any violent injury than the smoother vault would be.

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* See vol. lxiv., page 269.

If we leave out the dangers of concussion and compression, we find, in accordance with these anatomical peculiarities of the head, that diffused suppuration of the subcutaneous cellular tissue of the scalp, the transmission of necrosis of the skull to the meninges of the brain, purulent infection from the venous sinuses, and laceration of the vessels and the brain-substance from either fracture of the base of the skull or from contre-coup, constitute the four great dangers to which injuries of the head subject their recipients.

Of the more severe scalp-wounds which we have included in our enumeration of cases, but which we shall not detail at length, about one half had been closed by *sutures* before being brought to the Hospital. The results of these were no worse than those closed by adhesive applications. Erysipelas did not seem to arise in the one more than in the other; and we suspect that the danger of sewing up flesh-wounds about the head has been mainly owing to two causes: either that they were closed too tightly and too long to allow of the drainage of blood, serum and pus, or that the aponeurosis or fascia of the muscle was included in the stitch—the one case being followed by diffused suppuration; the other by necrosis of the skull from sub-periosteal inflammation. While, therefore, we would advocate union by plaster rather than by suture, we think it a point of far more importance to evacuate early and freely any collecting fluids.

Of the 10 cases of concussion, all recovered after rather brief intervals; but two were left with an apparently permanent impairment of mind. In all these the reaction, often excessive, gave the most trouble.

We may be permitted to doubt whether a simple, temporary concussion, or shaking up, of the molecular elements of the brain ever proves fatal, without some palpable, though minute, organic change being traceable after death, to account for such a termination.

Our attention having been directed to such a conclusion by the case which we shall presently narrate, we find strong testimony in support of this belief in Mr. Prescott Hewett's article on "Injuries of the Head," in Holmes's Surgery. On page 145, vol. ii., he says: "As matters stand at present, then, it still remains to be demonstrated that concussion may prove fatal without leaving a trace of injury in the brain-substance." "This conclusion differs, I know, widely from the teachings of some of the greatest masters in surgery; but, I can safely say, there is not on record, as far as I have been able to ascertain, a single instance in which the evidence of instantaneous death from simple concussion of the brain will stand the test of anything approaching to a rigid scrutiny." "But of late years, several pathologists, whose names stand preëminent in connection with cerebral affections, have taught that in fatal concussion appreciable lesions are to be found in the cerebral structures. True it is that these pathologists are not all exactly agreed as to the precise lesion; some—Chassaignac, Nélaton, Sanson—taking merely the millet-seed-sized extravasations of blood disseminated in the substance of the brain, either on its surface or deep in its structure; others—Dr. Bright, Blandin—taking not only these specks of extravasation, but also the circumscribed patches of contusion. Still these pathologists, one and all, agree in stating, that some deviation from the healthy structure is to be found in concussion of the brain, when it proves fatal. And M. Fano, one of the latest writers on this subject, comes to this conclusion, 'that the symptoms generally attributed to concussion are due, not to the concussion itself, but to contusion of the brain, or to extravasation of blood.' And to this I may add, that in every case in which I have seen death occur shortly after, and in consequence of, an injury of the head, I have invariably found ample evidence of the damage done to the cranial contents. Setting aside the cases of large extravasations of blood upon the surface of the brain, the most speedy death has occurred in cases where *specks of extravasated blood have been disseminated throughout the cerebral substance*, or where blood has been extravasated into the structure of the pons Varolii."

CASE I.—*Diffused Contusion of the Brain.*—May 29th, 1866. Geo. M. T., æt. 56. Patient fell into the hold of a vessel, a distance of fifteen feet. Now complains most of pain in left shoulder and at epigastrium. Left clavicle fractured, and apparently several ribs beneath it. Emphysema general over chest, except in right back; in front, it extends down to ilium.

A wound of the scalp, two inches long, on the vertex, had been closed by sutures, before entrance. A contusion existed behind left ear; a slight oozing of blood from external auditory meatus. Patient conscious; in great pain, over chest and back. Adhesive plaster was applied round the injured thorax. Clavicle adjusted by strapping the arm to the side.

Ten hours after entrance, pain on inspiration; headache; pulse full; delirious. Motion of liquid, in region of heart, heard at every inspiration.

May 30th.—Plasters loosened at his request.

31st.—Complains of dyspnœa and dysphagia; headache; face flushed; pulse 102; tongue brown.

June 1st.—Respiration easier; pain at epigastrium; *left pupil contracted.* P.M.—Becoming noisy and restless; pulse 130; respiration 40.

2d.—More quiet, but weaker; answers incoherently; asks for food, and takes beef-tea and milk; pulse 96, small; respiration 44.

3d.—The same. Has taken more nourishment.

4th.—Pulse 80; respiration 44. P.M.—Respiration stertorous; skin clammy. Died at 6, P.M., one week after receipt of injury.

Autopsy, by Dr. Swan, eighteen hours *post mortem*.—Clavicle fractured transversely. Second rib fractured, both extremities having penetrated the pleura and slipped by each other. Second, third and fourth ribs fractured at neck of rib; but little displacement there. Lungs œdematous and congested; but little effusion in pleura. Scalp-wound not united. Skull not fractured. Between dura mater and arachnoid a thin sheet of liquid blood—beneath the scalp-wound—but no flattening of the brain. Above and between lateral ventricles, for space of two inches, a great capillary congestion and extravasation. On section of the brain in these parts, the *puncta vasculosa* were very numerous and filled with dark blood, which streaked the white cerebral substance, in irregular striæ, following the knife. In some places minute clots could be lifted from the *puncta*, leaving distinct cavities behind them; this proving them to be true extravasations, and not simply engorgement of the capillaries; and, as a further proof that they would act as foreign substances in the brain, around one, larger than the rest, distinct yellow softening had taken place.

The same author previously quoted says, at page 157:—"Diffused contusion of the brain is but rarely met with; . . . . is sometimes difficult of detection, and, without careful examination, may readily pass unnoticed." "It is characterized by specks of extravasated blood disseminated throughout the brain-substance. These minute extravasations vary, from the size of the smallest pin-point to that of a split pea. In the latter form, the extravasation could hardly escape detection;' but in the former, the minute specks might, in slicing the brain, be easily mistaken for the cut surface of the cerebral vessels. A little care, however, will enable us to distinguish between the two. In the case of cut vessels, the specks can be easily wiped away, and then, by gently squeezing the brain, other specks of blood may be made to appear. The miliary extravasations cannot thus be wiped away; but, picked out with the point of a knife, they leave little holes, in which the concrete drop of blood was imbedded. The brain-substance around these minute holes may still retain its natural color; or, some days after the accident, it may be of a yellowish color, such as is so frequently noticed under similar circumstances in bruises of other parts. Thus in Blandin's case, which terminated fatally some eight or ten days after the injury, each little spot of extravasated blood was found encircled by cerebral substance of a yellowish color." "Miliary extravasations of blood, whether clustered together in one patch, or disseminated in various parts, cannot be assigned to concussion alone, but belong, one and all, to contusion of the brain."

"Bruising of the brain-substance may take place where the head was struck; or the bruise may be in a part of the brain far away from the original seat of the injury. The one is a direct contusion; the other, a contusion by contre-coup."

"The symptoms by which Sanson thought he could recognize contusion of the brain are, in the severe cases, tonic spasms of the limbs; intense restlessness, with constant tossing about in bed; unconsciousness; drowsiness without stertor; and, in slighter cases, simply *contraction of one pupil,* or of one eyelid; spasmodic movements of the single muscles, &c." "But after careful and patient watching of many cases of severe injury of the head, I must confess that I do not think we can thus clearly recognize a case of contused brain." "Nevertheless, it may be predicted that the brain has been bruised, whenever the symptoms are severe after an injury of the head. One sees patients recover after an injury of the head in whom it is more than probable that the brain was bruised; but of this no positive evidence can be obtained." "That which is most to be feared, when the brain has been bruised, is inflammation of the surrounding substance; and this it is which must be guarded against."

CASE II.—*Fracture of the Base of the Skull; large Effusion beneath Fracture.*—July 25th, 1865. D. P. was brought to the hospital by a policeman, who said he was struck by a man, and his head knocked against a brick wall. Now, speechless and unconscious; pulse 84, and full; breathing natural; will move his right arm and leg on their being irritated, but not otherwise; makes voluntary movements of the left arm and leg; swallows readily.

July 26th.—Breathing more hurried and stertorous; pulse 90, and weaker; swallows with difficulty; unconscious; pupils dilated; urine involuntary. 6, P.M.—Pulse 130; cannot swallow; failing. Died at 12 o'clock.

There were no marks of violence about the body. There seemed to be a very slight depression over the left ear; no bruise, no fracture to be felt; he gave evidence of pain when this spot was touched, yet the depression was scarcely discernible.

Autopsy.—A fracture of the skull extended from junction of left parietal bone with temporal, down through the foramen magnum. A large effusion of blood, with depression of the cerebral substance, was found beneath the fracture.

CASE III.—*Fracture of entire Base of Skull, with Laceration of Cerebellum by Contre-coup.*—April 14th, 1865. Mary G., æt. 35, fell down stairs while drunk, last evening. Remained unconscious, and breathing stertorously. Bled from nose from time of injury until 11, A.M. Now, 5, P.M., still unconscious, and respiration stertorous; pupils fixed, neither contracted nor dilated; pulse 90, and strong; skin moist; convulsive movements of left arm and both legs; ecchymosis in right upper eyelid; blood in left meatus anditorius, but not in great amount, and no oozing of serous fluid. A depression on left side of head, above ear. Pressure over the depressed spot was followed by movements of right arm. Dr. Cheever cut down over the left ear, and found a fracture extending downwards into the *meatus auditorius.* A loose piece of bone was removed. A circle of bone was trephined out, near the edge of the depressed portion. The depression was slight, and not enough to warrant further interference. A coagulum of blood was removed. Patient continued comatose.

April 15th.—Pulse 130; respiration 70; comatose; yet pupils now respond to light.

16th.—She died.

The autopsy revealed a fracture across entire base of skull, with a laceration of the cerebellum; a fracture extending into orbit caused the ecchymosis of the right eye, opposite the seat of injury, from contre-coup.

CASE IV.—*Four Fractures of Vault and Base of Skull without external evidence, with Laceration of Brain by Contre-coup.*—May 17th, 1866. R. G., æt. 55, fell from the third story of a store, through the elevator, striking upon his head. Was brought to the Hospital unconscious; breathing stertorous and obstructed by mucus; pulse 60, full and slow; pupils unequally dilated; coma. A very slight cut behind left ear, and an ecchymosis near it, as large as the finger-nail. But, by external manipulation, *no signs of fracture or depression* could be found. The patient laboring under compression of some kind, it was decided to cut down, and examine the skull. Enemata of brandy were given, and heat applied to the feet. A crucial incision made near the ecchymosed spot revealed several fissures of the skull radiating from this spot. Two small fragments of the outer table were removed with dissecting forceps. One portion being slightly depressed, the skull was trephined, the fragment raised, and an angular portion sawed off with a Hey's saw. There was no relief of symptoms, and, as a last resort, the dura mater was incised to see if a clot were compressing the brain; none was found. The patient gradually sank and expired.

Autopsy.—Four fractures of the vault—1st, starting from behind left ear, upwards and backwards around occiput, downwards to the opposite temporal bone; 2d, over towards left orbit; 3d, upwards over frontal bone to the root of the nose; 4th, going up to and opening the coronal suture. The membranes on the *right* side distended by a clot of about two ounces of blood; brain lacerated beneath it. Right lateral ventricle contains bloody serum. No injury of brain beneath the radiating centre of the fractures. The fracture (No. 2) continuing from left orbit downwards, backwards and inwards, across the greater wing of the sphenoid bone, to the internal carotid foramen, where it terminates.

CASE V.—*Fracture of Vault and Base of Skull, followed by Cerebral Softening and Purulent Absorption.*—Aug. 8th, 1866. P. M., æt. 40, was struck by a locomotive. Now conscious; pulse 56; pupils contracted. A scalp-wound, five inches long, extending over right orbit to parietal eminence; depressed bone felt by finger; some hæmorrhage. The external wound being enlarged by Dr. Thaxter, an oval piece of bone, one by two inches, was found much depressed, and several irregular fragments wedged around it. Three fissures radiated as follows:—1st, towards the occiput; 2d, into right orbit; 3d, outwards, through outer table only. A portion of sound bone was removed with Hey's saw by Dr. Thaxter, and the depressed pieces raised and removed. A small portion of brain-substance visible. Considerable venous hæmorrhage. 6, P.M.—Severe headache; vomiting; thirst; passed urine voluntarily.

9th.—Pretty comfortable night. Pain less; pulse 74. Enema ordered.

10th.—Slept six hours. Pulse 60, and weaker. Has taken considerable beef-tea.

11th.—Good night. Pulse 64; no headache; wound suppurating.

12th.—Slightly delirious; pulse 64; otherwise same.

13th.—Wound discharging very little.

14th.—Rather torpid; answers questions slowly; pulse 79; wound discharging dark, offensive pus. 6, P.M.—Weaker; unconscious; convulsions.

15th.—No change.

16th.—Respiration 40; pulse 140; dura mater bulging in wound. Died at 9, P.M.

The autopsy revealed the fact that the fracture had extended to the cribriform plate of the ethmoid, and that the brain beneath the injury was softened, discolored and offensive.

Numerous soft, circumscribed purulent deposits, without induration, were found in the lower lobes of both lungs; supposed to be secondary abscesses.

Of these four fractures, involving primarily, or secondarily, the base of the skull, all died. One lived only three hours; two lived about twenty-four hours; one lived one week, and died with purulent absorption.

In none of them was the discharge of any considerable amount of blood from the ear a symptom. In none was there any discharge of clear sub-arachnoid fluid from the ear.

Two presented no external evidence of severe injury beyond a trivial ecchymosis, and no symptoms of fracture by ordinary manipulation.

In two cases there was effusion of blood and laceration of the brain on the side opposite the injury, and this seemed the immediate cause of death. In the remaining two there was effusion under the seat of primary fracture.

We pass, now, to fractures of the vault.

CASE VI.—*Fracture of outer Lamina of the Frontal Bone.*—Mrs. ——, æt. 32, was struck by a flat-iron over centre of forehead, and several lacerated scalp-wounds produced—one evidently a compound fracture of the skull. There were no symptoms of compression, although she was temporarily unconscious on receipt of the injury.

Dr. Buckingham enlarged the wound, and found a comminuted, depressed fracture near the nasal process of the frontal bone, with radiating lines of fracture in three directions. Small portions of the os frontis were removed by the elevator and forceps. It seemed probable that the outer wall of the frontal sinus was driven in. She recovered in a few weeks, without an unpleasant symptom.

CASE VII.—*Fracture of Vault of Skull, with Depression.*—Feb. 2d, 1865. F. E. W., æt. 8. An hour ago was struck with a small hammer on top of head. Now conscious; complains of constant pain; pulse quick and weak. Two wounds through scalp, with depression of skull.

Feb. 3d.—Still conscious. Wounds enlarged by Dr. Coolidge; both on right of vertex. A circular depression found, one fourth of an inch across; no injury beyond. The depressed fragments were removed by lever and forceps. The dura mater found torn, and the brain is visible.

4th.—Projection of brain from wound in dura mater; pulse 160; bright flush on cheeks; conscious; moans, and complains of head; eyes turned to right.

5th.—Less fever; left arm and leg partially paralyzed; slight stertor; contraction of wrists and fingers.

6th.—Takes no food; wound offensive, dark and dry; pulse 160; pupils dilated; articulation indistinct; feels vaguely for objects towards the right. Died at 9, P.M.

CASE VIII.—*Compound, Depressed, Punctured Fracture of the Skull without Symptoms; Trephining; Splintering of the Inner Table; Recovery.*—June, 1866. Thos. T., æt. 37, mariner. While at work in the hold of a vessel was struck by a piece of iron, falling from aloft, upon the head. The blow knocked him down, but he did not lose his consciousness, and he soon resumed work, which he continued until night. He then consulted a physician, who sent him to the Hospital. He was seen by Dr. Cheever at 10, P.M. There were no symptoms, and he did not desire to remain. The scalp-wound was irregular, and about an inch long; it was over the vertex of the right parietal bone. The finger, passed in, felt a portion of bone, about three fourths of an inch square, deeply depressed and firmly impacted. On the gravity of his injury being explained to him, the patient decided to be etherized and examined.

On enlarging the scalp-wound, the depression was found to be a quarter of an inch below the surface, and small fragments were wedged in vertically on each side. The bone being punctured, comminuted, and evidently depressed below the inner table, it was, after some deliberation, decided to trephine. The operation was done without difficulty, and the fragments elevated and removed. Numerous spiculæ, splintered off from the inner table, were found under the edges of the sound bone, pressing down on the dura mater; the latter was uninjured. There was a little bleeding from some meningeal vessel, which ceased of itself. The edges of the inner table were smoothed with the knawing forceps. The external wound was left open; a wet compress applied. The patient was placed in a dark room, on a low diet, and a purely antiphlogistic treatment carried out.

June 20th.—Has slept considerably; but little pain; pulse 80, full and soft. Water drawn by catheter.

21st.—Wound discharging a thin, bloody serum. The flaps were raised and charpie inserted, to ensure drainage. No uncomfortable symptoms; pulse 78. ℞. Magnesiæ sulph., ℥ i.

22d.—Suppuration beginning; pulse 84; patient feels well. An enema of castor oil and turpentine. Continued low diet. To-day, moved sufficiently to change clothes. Perfect rest, quiet, and darkened room.

23d.—Wound granulating; considerable healthy pus; carefully drained by charpie; during the night, moderate epistaxis; pulse 80, full. To be bled from the arm eight ounces. To have iced milk.

25th.—Pulse 78, more compressible; wound filling with healthy granulations.

26th.—Epistaxis again; pulse the same.

28th.—Pulse 72; doing well. May have light admitted to the room.

30th.—Continues well. Broth for dinner.

July 9th.—Put upon full diet.

17th.—May sit up. Wound closing.

28th.—Only a small point of scalp unhealed. No symptoms. Desires to go home, and is discharged, with due cautions.

One month later, is seen, well.

Three cases of fracture of the vault of the skull give two recoveries and one death—the latter occurring in a child of eight years, badly fractured.

Of the three times in which the operation of trephining was done, one recovered; two, both complicated with fracture of the base of the skull, died.

In the latter, accompanied as they were by symptoms of compression, the propriety of operating cannot be questioned, since there were no external evidences of a fracture of the base.

With regard to Case VIII., where the operation of trephining was done, without symptoms of compression, it may, perhaps, be thought open to criticism; and yet we believe the balance of sound authority to be on our side.

We had, in this case, a compound, depressed, punctured fracture of the vault, without any symptoms—the patient continuing at his work several hours after receiving the injury, coming to the Hospital only on the urgent advice of his physician, and being himself desirous to return home without treatment. Yet an exploration revealed a small, deeply depressed fracture, with comminuted edges; and the operation disclosed a considerable splintering of the inner table of the skull, whose spiculæ were lying detached upon the dura mater, but not compressing the brain. This man recovered without a bad symptom; and being once well, by the closure of the opening, is probably safe from any recurrent symptoms in future. He was subjected to the risks of a grave operation for a prospective, not a present evil. On the other hand, had he gone home without treatment, in all probability the detached fragments of the inner table, cut off from nourishment, would have necrosed, have had no way of exit, and have led to fatal irritation of the meninges of the brain. He would have been, for the present, subjected to the risks of a compound fracture of the skull; and, in the future, to the chances of depression, of intra-cranial suppuration and meningitis.

Mr. Hewett, in the article previously quoted (Holmes's Surgery, vol. ii., page 118), says:—

"But suppose there be a wound leading down to the bone in a depressed fracture without symptoms, what is to be done? Are we to operate at once, or not? The rule is that we are to operate, and at once. Compound fractures of the skull, with depression, most frequently lead, as demonstrated by Sir A. Cooper and Sir Benjamin Brodie, to intra-cranial suppuration; and hence the rule laid down by these celebrated surgeons, that we are to operate to prevent the impending mischief. . . . . In the punctured fracture, in which sharp splinters of the inner table are driven down upon, or into, the dura mater, inflammation almost invariably arises sooner or later; and of all compound fractures of the skull, the punctured fracture is, on this account, the most dangerous, and the one which most imperatively calls for the use of the trephine."

In simple fissures of the skull, unaccompanied by brain symptoms, the same authority tells us, we are not to interfere. In a simple fracture, with evident depression, without symptoms of compression, we are to abstain from the trephine.

To condense, then, the rules of treatment, which the experience of later surgeons than Mr. Pott has taught us, we find them as follows:—

1. In simple fractures of the skull, without brain symptoms, do not trephine.

2. In simple fractures, with symptoms of compression, or in any injury of the head with such symptoms, cut down through the scalp, and if depression be found, trephine. If no depression be found, but a crack, it is an open question whether to interfere, or not. The compression may be due to effusion beneath the seat of fracture, when it would be accessible on trephining; or it may be due to effusion, or laceration, by *contre-coup*, at some distant spot.

3. In a crack or fissure of the skull, without symptoms, do not interfere.

4. In a compound, depressed fracture of the skull, particularly if punctured, with or *without* symptoms, trephine.

The operation of trephining is, as is well known, quite a fatal one. Originally over-estimated by Pott, it afterwards fell into too great disfavor, but has been partially restored to popularity by the favorable experience of it in gun-shot fractures during the late war.

Of the four patients whom we have trephined for injuries of the head, two lived and two died. The latter cases were subsequently found to be complicated with fracture of the base.

We have only one word more to add in regard to treatment after operation. In both our cases of recovery, a strictly antiphlogistic treatment was carried out—a low diet, a dark room, perfect rest, purgatives, and, in one case, venesection.

The happy termination of these cases may have unduly prejudiced us in favor of this now unfashionable mode of treatment; yet if any surgical maladies warrant it, surely injuries of the head must do so; and we shall continue to employ it until we see reason to the contrary.

DR. WEBBER'S ESSAY ON CEREBRO-SPINAL MENINGITIS.

[Continued from page 184.]

TREATMENT.

It is necessary to quote only a few authors to show the similarity between the treatment adopted previous to the late epidemic and that which is now followed.

General bloodletting was not considered judicious; Dr. Woodward says: "Bleeding was tried, but, I believe, always did harm."

Dr. Gallup, however, considers that bleeding may in some cases be employed with advantage, but he does not advocate its indiscriminate or excessive use. "As it has fallen to my lot to speak in favor of bloodletting and against opium, some might begin to think that my whole intention might be to trust the cure to evacuations and debilitating remedies. But when reference is had to the indication laid down in the first number, this will be set right."

Dr. Hale says:—"I mention evacuation among the remedies for this disease, although I did not employ it myself, nor see any case in which it had been employed; because it has generally been considered a powerful remedy, and because it gives me an opportunity to say that I have had no experience of its efficacy. I was deterred from practising it by the great tendency to debility which I witnessed in the disease, as well as by the reports which I had heard of the disastrous effects which were said to have followed its use in other places."

M. Valleix quotes M. Tourdes, who is in favor of bloodletting, and then adds:—"If, now, we inquire what has been the effect of these losses of considerable blood, we see that they have been scarcely noticeable, and that in spite of copious and numerous bleedings, in spite of leeches, in spite of wet-cups, the disease did not the less continue its course, and, which ought to be noticed yet more particularly, the principal symptoms were not essentially amended. Here is, moreover, how M. Tourdes judges definitively in relation to the value of this remedy.

" 'To deny absolutely, says he, the utility of bleeding, would be to fall into an exaggeration as false as the unlimited confidence in the employment of that remedy. The facts would contradict this unjust proposition. There are a certain number of cases in which leeches applied at the commencement and in the two first stages have caused the happiest cures. We could add several successful examples to those which have been mentioned above. In spite of the too frequent inefficacy of bleedings, they have rendered us, in this sad epidemic, more real service than other medicaments.'

"This conclusion does not appear to me as exact as could be wished. It was important to quote the cases in which the recovery has been attributed to blood-letting; for it is difficult to understand how a means, which remains without action on all the symptoms, and which in so many cases has no real influence, can succeed in producing in some prompt and rapid cure."

The Committee of the Massachusetts Medical Society did not advocate bleeding, as it was generally thought to be injurious.

Dr. Mann, it will be remembered, saw the disease in its most sthenic form; he says, "the practice was warranted by repeated and acknowledged success, which followed bloodletting."

Dr. Miner recommends to avoid "every thing that might waste the vital powers."

Dr. Ames, of Montgomery, thinks "blood-letting not very satisfactory."

Casimir Broussais was in favor of bleeding, and considered it the only means of treatment during the early stages likely to be attended with success.

Prof. Forget is in favor of general and local depletion, considering the local preferable.*

So also with regard to emetics and cathartics, the opinion of the profession was generally opposed to their employment. Stimulants and tonics were more commonly favored. Sweating, by the application of external heat, was by many held in much esteem.

In the account of Haskell, Spooner and Holmes, it is said, "From these facts it is easy to conceive how cautious we should be in the use of emetics and cathartics in this very singular disease."

Dr. Hale says, "The only object for which I ever prescribed cathartics in the epidemic, was to avoid costiveness. For this purpose, those were always preferred which would be the least likely to give pain in their operation, and would produce the least prostration of strength." He was more favorably disposed to emetics. He also considered that diaphoretics, tonics and stimulants were beneficial, and favored the application of blisters.

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* American Journal of Medical Sciences, New Series, vol. v.

Dr. Gallup advises the cautious use of emetics and cathartics, and says in regard to opium and other stimulants, that their indiscriminate use ought to be discountenanced, but "it will be acknowledged that in certain conditions a judicious use of them may be useful."

Dr. North says, "That the tonic and stimulating method of cure, as opposed to the debilitating plan, is the correct one, I have not the least doubt."

Dr. Woodward says, "Having no guide but experiment, bleeding, vomiting, purging, sweating and stimulating were all tried; sweating appeared to give the most relief." "Bark, opium, ether, peppermint, ardent spirit, wines, stimulating teas, and sweating, with external heat, have been the remedies used, and when applied in season, have seldom failed of success."

So also the Committee of the Massachusetts Medical Society recommend sweating by both internal and external means, and the judicious use of stimulants, as cordials and opium.

Dr. Jared P. Kirtland, of Trumbull County, O., favors light cathartics to move the bowels and obviate costiveness, artificial warmth, tonics and stimulants. He says, with regard to opium: "Opium is almost the sole remedy for general irritability, and when correctly managed, supersedes the necessity for other support even in the most inveterate cases of fever of this variety. It must be so given as to control the system, and continued till the morbid action be subdued."*

Dr. Ames, of Montgomery, Ala., does not consider blood-letting very satisfactory, thinks blisters are beneficial, and does not value opium very highly.†

M. Chauffard considered opium the principal if not the sole remedy necessary. The account which he gives of the manner in which he was led to try that drug is very interesting. He reports cases wherein he failed of success in treating with antiphlogistics and refrigerants, including bleeding, purgatives, emetics and calomel; he also found tonics powerless, either alone or combined with the previous methods. At length he was influenced by the failure of other remedies and the character of the symptoms to employ opium, and was successful. He then remembered that in other cases opium had seemed to check the progress of the disease; and even when given in large doses, instead of aggravating the cerebral symptoms, seemed to have a quieting influence and produced refreshing sleep. Subsequently he used opium in many cases, sometimes combining it with quinia, and found that in large doses it was beneficial, if not producing a cure, relieving the pain and rendering the patient much more comfortable. He employs from four to seven grains of opium in twenty-four hours.

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* Medical Recorder, vol. xiv.

† American Journal of Medical Sciences, New Series, vol. xvii.

Valleix does not consider blisters beneficial, and quotes Tourdes in opposition to their use. Quinia is thought to be rather beneficial than otherwise. Other tonics he would postpone until the period of convalescence.

Thus we see that there was a diversity of opinion on many points. This may have arisen partly from a diversity in the character of the epidemics, or, what is perhaps more probable, from the different systems of practice employed in different countries or at different times. Depletion was generally condemned. Cathartics, except the mildest to merely open the bowels, and emetics, were likewise generally discountenanced. Diaphoresis, especially when procured by external means, was advocated on this side of the Atlantic; not so much in Europe. The opinion was divided with regard to stimulants and especially opium, though generally in their favor.

CAUSES.

The cause of this disease is generally considered to be atmospheric change; there are other influences, which are better known, and which coöperate with this in producing the disease: such are the predisposing causes.

The atmospheric change is not perceptible by any of the means of analysis at our command; its origin may be from sudden changes in temperature, unusual dampness or warmth, or, on the other hand, cold and damp weather, or it may arise from circumstances not now considered related to it. M. Faure Villar says, with regard to the prevalence of this disease at Versailles:—"The epidemic had two outbreaks—one in April, the other in May. They appeared to arise from atmospheric variations, and from the fatigue of military exercises."*

"No particular change in the atmosphere that can be discovered, though probably the disease sprang from atmospheric causes."†

"It could so much the more properly be attributed to the influence of the air, as it attacked every station and different quarters of the city and of the country, without any trace of contagion."‡

It is frequently epidemic, prevailing with great violence, and at such times is very mortal. Such epidemic seasons have been seen in this country during 1807–14, 1819–27, 1847–50, and since 1861. But the disease has been noticed during other years, as the previous pages abundantly show, in a less severe form; indeed, since its first well-authenticated appearance in 1806, there have been only twenty-four years in which it has not been found to exist in some part of the United States, and it probably prevailed during many of those years, but no records have been left to testify with regard to its presence, at least none have been found by the author. In foreign countries the same epidemic seasons have been encountered, as in France from 1837 to 1849.

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* Revue Médicale, t. lxxi.

† M. Vieusseux on Cerebro-spinal Meningitis at Geneva, in the Jour. de Med., Chir., Phar., &c., t. xi.

‡ At Genevá, in 1850, Jour. de Med., Chir., Phar., &c., t. xi.

Sporadic cases are comparatively mild, and it is only when this disease rages with the violence of an epidemic that the notice of the public and of large numbers of the medical profession is attracted to it sufficiently to record the results of their observations. During epidemics, the mortality has been sometimes very great, even as high as 60 or 80 per cent., generally more than 50 per cent. The question then arises, is the disease contagious, or can it in any way be propagated from one individual to another perfectly healthy? The general opinion among those who have seen much of the disease is, that it cannot be thus communicated; though many consider it slightly so, and give instances where it certainly seems to have been communicated, though most of the persons affected by that means have been a long time residing with the sick, in the same houses, even in the same rooms, as nurses and attendants.

The Committee of the Massachusetts Medical Society, in 1810, reported that it was very generally agreed that the disease was not contagious.

Dr. Daniel Hudson, of Niagara, says:—"I am, from actual experience, enabled to assert that it is not of that class of diseases which may be communicated by contagion."*

Dr. J. L. Miller, in speaking of the epidemics of Virginia, says:—"I saw nothing to justify the opinion of its being contagious."†

Dr. Vaughan, of Hallowell, Me., writes:—"If the disease be contagious, the contagion fortunately so operates that the humane attendants on the sick scarcely suffer more by it than those who shun their duty in this respect."‡

[To be continued.]

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON: THURSDAY, OCTOBER 4, 1866.

IMMUNITY FROM CONTAGIOUS DISEASES.

One of the most curious facts in the history of contagious or epidemic diseases is the immunity which certain persons seem to enjoy from their attacks. The experience of every physician must supply him with instances illustrative of this. It is not uncommon to meet with people who have arrived at adult age without having contracted scarlatina or whooping cough, for instance, who have been more or less exposed to both of these diseases, which by the majority of physicians are regarded as contagious. Certain families seem to possess this immunity in a marked degree. So numerous are such exceptional instances, that if, in the present state of medical knowledge, with the present tendencies of the medical mind, the question of the communicability of these diseases could come up *de novo*, we have no doubt the negative side of the question would be maintained with an energy which under present circumstances is hardly possible. The same exemption is observed in the case of all other contagious diseases. Fortunate, indeed, is it that this is the case, for were it otherwise, as has been well remarked, the human race would have become extinct long ago.

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* American Medical and Philosophical Register, vol. iii.
† Philadelphia Journal of Medical and Physical Science, vol. v.
‡ Medical Repository, N. S., vol. iii.

The sort of exemption which individuals appear to enjoy, attaches, in like manner, to certain places. Whole communities, for example, hardly know what diphtheria is, while others not far off, for no assignable reason, suffer severely from repeated visitations of this terrible disease. Our own city is a marked instance of the former, and it would not be difficult to refer to smaller places, apparently quite as well situated hygienically, within fifty miles of us, where it is a much more frequent and fatal visitant.

The same immunity of individuals and communities has been observed with regard to Asiatic cholera, and constitutes one of the most puzzling questions in the history of this disease. Again we may quote our own city as having been singularly favored in this respect. Past epidemics have hardly touched us, and so far during the present year we have scarcely felt the breath of the pestilence. Some signal examples of a similar character have been noticed in Europe. It has been ascribed by different observers to the influence of a granitic soil, or to the altitude of the locality above the sea; and although there would seem to be some ground for their opinions, yet the rule is not without a good many exceptions. Many towns in Europe are said to enjoy the immunity of which we are speaking, but certainly one of the most remarkable is the city of Lyons. The following facts concerning it we take from the interesting report of the Commission of the International Sanitary Conference, an abstract of which we published a few weeks since.

"This city, of 400,000 souls, seems at first sight to combine all the conditions favorable for an epidemic of cholera. Situated at the confluence of two rivers, if, on the one hand, it is based on an Alpine soil, on the other it rests upon alluvium. It contains a large collection of workmen; the causes of insalubrity and misery are not wanting; furthermore, it is on the great line of communication which traverses France from south to north, and it has served as a place of refuge for large numbers of fugitives from places where cholera was raging. In spite of all this, Lyons has, so to speak, resisted up to the present time the cholera influence. It entirely escaped the first epidemic, which, in 1832, ravaged the north of France, then that which ascended the Rhone in 1835. Later, during the epidemic of 1849, a barrack was invaded, and some cases of cholera showed themselves in the neighboring quarters; but after three weeks it all disappeared. In 1853, when cholera raged in the department of the Drôme, the disease appeared at Lyons, and reached the number of 400 cases and 196 deaths, after which it died out. Finally, in the year 1865, cholera has not been signalized, so far as we know, except, perhaps, by isolated cases which have come from without. It cannot be said that Lyons has escaped because there have been no arrivals from cholera districts; far from this, such arrivals have been very numerous; the disease has been imported there and has sometimes developed itself just enough to show the power of resistance of the native population, or, if you please, the locality, to its propagation."

This sort of immunity is a standing argument with those who deny the communicability of cholera. They demand its explanation from those of opposite views, or claim that it proves the *non-communicability* of the disease. Of a similar character is the argument deduced from the impossibility in many instances, particularly in large communities, of tracing every case of Asiatic cholera to direct infection. Failure to do this is claimed as evidence that it cannot be due to such a source. The same argument would have equal force in the case of smallpox or any other acknowledged contagious disease. Our want of knowledge in one direction should not outweigh positive knowledge in the other. The arguments in both of these instances are, in our estimation, of equal value, and that is just nothing.

Cholera in Paris.—We find the following in the *Union Médicale* of September 13th :—

The *Moniteur* at last speaks to-day, and the note which it publishes releases, without doubt, for the future, the medical journals from the silence which they have been asked to preserve during the reigning epidemic.. The following is the official note.

* * * * * * The epidemic reappeared at the beginning of July. It reached its maximum in a few days, without a higher rate of mortality, in the hospitals and city together, than 150 deaths per day. Since the end of July the epidemic has sensibly diminished. The average number of deaths, in the hospitals, was, during the month of August, 23 daily. It has not been higher than 15 for the nine first days of September. We see, by these figures, particularly if we compare them with the whole population of Paris (1,667,841 inhabitants), that the epidemic has been very mild in the capital, and that in a few days it will, in all probability, disappear. In a city which, like Paris, contains an immense working population, it is the hospitals which give the measure of the importance and the condition of the epidemic. As for the deaths which have occurred in the city, they have never reached a very high figure, and since the first of September they have sunk to the average of 22 per day.

History of a Case of Cholera.—Dr. I. Morrell, of Fulton, N. Y., under date of August 21, communicates the following to the *Medical and Surgical Reporter* :—

"In looking into the fourteenth volume of the *Reporter*, page 355, I see an account of a case of Asiatic cholera that occurred in the village of Topsham, Me., in February, 1832. The facts are these:—a sailor arrived at his home in Topsham, from Europe, having had cholera in Bremen, where, as well as on the continent, the disease was very prevalent. After coming on board ship, he trailed his clothes for several days, when they were dried, and deposited in his chest among some trinkets for a little sister. She unpacked them the evening of his arrival. About two o'clock the following morning the little girl was taken violently sick, and Prof. McKeen was called, and seeing some symptoms unusual, asked Profs. Mussey and De Lamater to call in. They were unanimous in the opinion that it was a case of Asiatic cholera. There had been at that time no cases of Asiatic cholera in the country."

THE following curious incident is related in the *Journal de Médecine de Bordeaux :—*

On the 19th of May last, at about half past nine in the morning, M. M***, the Professor of Physics in the Lyceum of Marseilles, was explaining to his pupils in special mathematics the perturbations of the magnetic needle, which are only caused by violent storms, the aurora borealis or earthquakes; at the same time placing before them a very long needle, recently purchased for this lesson. "You will see, gentlemen, that it will take its disposition of equilibrium and remain immovable." Not at all! The needle trembled and oscillated to the right and left in an extraordinary manner. The malicious scholars began to laugh. M. M*** ascribed it to a bunch of keys which he thought he had in his pocket; but it was not so. He looked about to see if there was not a piece of iron in the neighborhood. All of a sudden the needle made a complete circuit. "Gentlemen," said the Professor, "in confirmation of what I was explaining just now, you have here the evidence of an earthquake; yes, gentlemen, for the state of the sky, the barometer and the immobility of the needle since the morning do not admit either a storm or an aurora borealis. Let us observe the seconds on this watch; be attentive!" After three minutes of anxious silence the glasses rattled, the windows shook, the rumbling came, four distinct shocks were felt, strong, from east to west; they continued nearly four seconds, and the needle did not become entirely quiet until after eighteen minutes of agitation, after which the lesson continued. The pupils, at the end of the lesson, begged the professor not to abuse this kind of experiments. The earthquake was distinctly felt in the town.

Medical Prizes.—The following prizes deserve the general attention of the medical profession, and offer an excellent opportunity for earning professional distinction. They are all of practical importance. The first two ought, certainly, after the army experience of so many of our brethren, to draw out papers of the greatest value to the world at large. Surely no class of men, of late years, have had such ample opportunities as they for studying these subjects. The third is of great importance at this time, when the subject of life insurance is engaging the attention of so many active minds.

THE ASTLEY COOPER PRIZE.—The subject for this prize (the 9th triennial), to be awarded in 1858, is Pyæmia. The value of the prize is £300, and under the will of the late Sir Astley Cooper, all members of the medical profession, whether natives of England or any other country, have the liberty of contesting for this honor, with the exception of those comprising the surgical and medical staff of Guy's and St. Thomas's Hospitals. Essays, either written in the English language, or, if written in a foreign language, accompanied by an English translation, must be sent addressed to the Physicians and Surgeons of Guy's Hospital, who are appointed under the will the adjudicators of the prize, on or before January 1st, 1868.

JEWETT PRIZE.—This prize of two hundred dollars, to be awarded March 1st, 1867, is offered by Prof. Jewett, of Yale College; subject, The best Hygienic Means of preserving the Health of Armies, whether in the Field or in Camp, at rest or in motion. For details, see the advertisement in this week's JOURNAL.

PRIZE OF THE AMERICAN POPULAR LIFE INSURANCE COMPANY, OF NEW YORK.—This company offers a prize of a Paid-up Life Policy, for $500, for the best essay on the Physical Signs and other Indications of Longevity. The essays may be written in any language, and should be sent to the Company, with the writer's name enclosed in a sealed envelope, previous to January 1st, 1867. It is desirable that the signs inhering in the individual, and therefore directly observable, should be fully treated.

PRIZE OF $100 FOR THE BEST ESSAY ON EXPECTANT MEDICINE.—We would remind our readers that this prize is still offered to the medical profession through a Committee of which the President of the Massachusetts Medical Society is Chairman. The details concerning it have already been given in this JOURNAL.

Typhus and Typhoid Fevers.—At a recent meeting of the Dublin Medical Association, Dr. Henry Kennedy brought forward a number of interesting cases, where the symptoms of typhus and typhoid (or enteric) fever were so mixed that it was impossible to say under which disease the patient was laboring. Dr. Kennedy used these cases in support of opinions, long held and often expressed by him, that typhus and typhoid fevers were only varieties of a disease produced by one common poison; and that the diseases were not specifically different. He also detailed cases supporting the same views, where the typhus and typhoid forms of fever had arisen in different members of the same family at the same time.—*Buffalo Med. and Surg. Journal.*

Kreasote in Diphtheria. By J. J. KNOTT, M.D., of Griffin, Georgia.—Owing to the speedy and happy results following the use of kreasote in diphtheria, coming under my observation, I am induced to give, in a short article, the manner in which it has been employed by me during the past three years, in military and civil practice.

In the year 1863, while in charge of the smallpox hospital for Longstreet's Corps, Army of Northern Virginia, diphtheria prevailed to such alarming extent, as a sequel of that loathsome disease, variola, and the mortality was so great in the cases under my care, that I was induced to look out for some more useful mode of treatment than had been used in its management previously. Regarding the disease, in the earlier periods, as local in its character, and of a septic tendency, I determined to test the virtues of this powerful antiseptic, local alterative and styptic.

The first case in which I used it was a very malignant one; so much so, that at one time I had almost despaired of his recovery. The following formula gives about the strength in which the remedy was applied to the parts affected:—℞. Kreasote, ʒij.; aqua font., ℥ ij.; pulv. acacia, q. s. A sponge saturated with the kreasote thus suspended in mucilage, was applied to the parts where the pseudo-membranous exudations were exhibited, early in the afternoon. In a few hours another application was made, and, without further treatment, all the more violent symptoms disappeared during the night. On the following morning my patient seemed so much relieved that further treatment with the remedy was unnecessary.

Continuing this application in the treatment of subsequent cases, I lost no more cases from this disease.—*Atlanta Med. and Surg. Jour.*

Among the brevet promotions recently published is one of Dr. Henry A. Martin, of Roxbury, late Surgeon U. S. Vols., to be Lieut. Colonel, for "meritorious and gallant services," to date from March 13th, 1865.

Surgeon-General Barnes, who was taken seriously ill at Chicago, returned to Washington, Sept. 17th. We are happy to announce that there is every prospect of his soon being able to resume his official duties.—Dr. B. A. Vanderkieft, Brevet Colonel and Surgeon, U.S.V., died in Rochester, N. Y., of hepatic abscesses, Sept. 8th.—*Medical Record.*

VITAL STATISTICS OF BOSTON.

For the Week ending Saturday, September 29th, 1866.

DEATHS.

	Males.	*Females.*	*Total.*
Deaths during the week	50	29	79
Ave. mortality of corresponding weeks for ten years, 1855—1865	47.7	41.8	89.5
Average corrected to increased population	00	00	98.35
Death of persons above 90	0	0	0

Books Received.—Pereira's Materia Medica and Therapeutics. Philadelphia: Henry C. Lea.—Orthopedics: a Systematic Treatise on the Prevention and Correction of Deformities. By David Prince, M.D. Philadelphia: Lindsay & Blakiston.—A Treatise on the Origin, Nature, Prevention and Treatment of Asiatic Cholera. By John C. Peters, M.D. New York: D. Van Nostrand.

Married,—At Castleton, Vt., Dr. Sept. 25th, John Knowlson to Miss Caroline Langdon.

Died,—At Guilford, Conn., Dr. Atherton Clark, formerly of Easthampton, and father of Prof. W. S. Clark, of Amherst College, aged 77 years.

Deaths in Boston for the week ending Saturday noon, Sept. 29th, 79. Males, 50—Females, 29. Accident, 2—congestion of the brain, 1—disease of the brain, 3—bronchitis, 1—cancer, 3—cholera infantum, 9—cholera morbus, 2—consumption, 15—convulsions, 4—diarrhœa, 2—diphtheria, 1—dropsy, 1—dropsy of the brain, 2—dysentery, 2—typhoid fever, 4—gastritis, 1—disease of the heart, 2—hæmorrhage, 1—infantile disease, 1—intemperance, 1—disease of the kidneys, 1—lichen, 1—disease of the liver, 1—congestion of the lungs, 2—inflammation of the lungs, 2—marasmus, 2—paralysis, 1—purpura hæmorrhagica, 1—smallpox, 1—unknown, 8—whooping cough, 1.

Under 5 years of age, 31—between 5 and 20 years, 5—between 20 and 40 years, 18—between 40 and 60 years, 16—above 60 years, 9. Born in the United States, 57—Ireland, 14—other places, 8.